

## B. Specification

Please amend the paragraph at page 1, lines 12-23, as follows:

--With ~~the~~ development of film formation ~~technique~~ techniques in recent years, various materials and devices are ~~coming to be~~ being constructed mainly of a thin film of 1  $\mu\text{m}$  or thinner. ~~Lately, high-speed~~ High-speed film-formation techniques have been recently developed, which ~~enables~~ enable formation of a thin film structure by holding plural functional films on a substrate as a fine part of a high functionality device, such as an electronic device ~~device~~ and a bio-chip ~~chip~~. Further, thin film structures having a sensor function ~~have become important which that detect~~ detects a micro quantity of a chemical reaction product by utilizing plural components in the thin film have become important--

Please amend the paragraphs at page 2, line 13, to page 4, line 7, as follows:

--and combinations thereof. In particular, a precise and accurate analysis of the film components is indispensable, since the functions of the thin film are affected delicately by the component ratios. The extremely small thickness of the thin film tends to cause a problem of dependence of the functions of the thin film on the state of the substrate for the thin film, ~~and as well as~~ a problem of an adverse effect ~~of~~ caused by ~~a~~ contamination with ~~a~~ foreign matter or a change ~~of~~ in the quality or quantity of the thin film by a pretreatment. The dependence of the function of the thin film on the film component ratio is investigated frequently by formation of thin film samples constituted of various

component concentration ratios, direct measurement of the function as mentioned in the above method (1), and preparation of a calibration curve regarding the dependency of the obtained signal intensity on the component concentration ratio. For preparation of a more accurate calibration curve, the components should be uniformly distributed in the thin film sample ~~as well as precise control of~~ and the component concentration ratio in the samples should be precisely controlled.

P. Lazzeri et al. (Surface and Interface Analysis, Vol.29, 798 (2000)) describes formation of a thin film by spin coating and analysis thereof with a time-of-flight secondary ion mass spectrometer (hereinafter referred to as a "TOF-SIMS"). In this method, the size of one thin film is several millimeters square. This size is about ten thousand times the size of thin films used currently in devices in which the size of the one thin film is being decreased to tens of micrometers square. Such a large difference in the size causes a difference between the practical thin films and the thin films for calibration samples ~~owing due~~ to local flocculation and mixing state of the respective components, ~~and~~ and other conditions. Therefore, ideally, the ~~one~~ entire thin film is to be measured and analyzed ~~in at~~ one time. However, one measurement region of the TOF-SIMS is as small as several hundreds of micrometers square, which cannot cover the entire thin film at one time. Therefore, the measurement sectional regions are introduced successively into a measurement chamber for the measurement. In such a measurement process, during the waiting time for the measurement, the component ratio ~~is liable~~ tends to vary ~~by~~ due to adhesion of moisture or an impurity from the environmental atmosphere to the

measurement regions or evaporation of the sample component from the measurement regions.--

Please amend the paragraphs at page 4, line 12, to page 5, line 15, as follows:

--~~Energy~~Energy-dispersive fluorescent X-ray analysis is capable of ~~simultaneous-simultaneously measurement-measuring of~~ Na and heavier elements by ~~use of~~ using a fluorescent X-ray. The fluorescent X-ray intensities are proportional in first approximation to the concentrations of the respective elements, but are affected greatly by a ratio of coexisting component elements by absorption and a secondary excitation effect thereof. Therefore, in the fluorescent X-ray analysis ~~also~~, the standard specimens for the calibration should also be prepared by strict control of the component mixing ratio for the quantitative determination of the film components and evaluation of the functionality.

U.S. Patent 5,365,563 evaluates the influence of a component mixing ratio in the thin film by a calculation means in a quantitative determination by the fluorescent X-ray measurement. In this method, however, a precise calculation is difficult, since the fluorescent X-ray intensity is not necessarily in a linear ~~relation~~ relationship to with the component ratio. Further, in this method, the number of prepared samples should be prepared in a number corresponding correspond to the number of the film components, which requires ~~finally~~ test specimens of high accuracy for the quantitative determination.

By ~~Due to~~ the above reasons, precise quantitative determination is not practicable ~~practical by using~~ any of the conventional methods. Therefore, in many analysis methods including ionic analysis and fluorescent X-ray analysis, standard specimens should be prepared with accurate and precise control of the component concentration ratio.--

Please amend the paragraph at page 20, line 14, to page 21, line 9, as follows:

--The printer employed was a bubble jet printer (BJF-950: Canon K.K.) of a bubble jet type, a kind of a thermal jet type printer. The above-prepared aqueous standard solutions were placed respectively in a several hundred microliter portion in the three tanks of the printer head of the printer. The volume of ~~the~~ one liquid droplet of the respective solutions ejected from the printer heads was 4 pL/droplet. The dot formed by one liquid droplet on the element position had a diameter of about 50  $\mu\text{m}$ . The spots were formed by dotting in superposition. The content of P in one ejected droplet is  $2.4 \times 10^8$  atoms and the content of Na therein is  $2.4 \times 10^8$  atoms. The content of K in one ejected droplet regarding K matrix is ~~also~~ also  $2.4 \times 10^8$  atoms. The Na matrix and the K matrix were formed respectively of 157 lines and 236 columns at a density of 200 dpi, namely a 127  $\mu\text{m}$  pitch, in a range of 20mm  $\times$  30mm on the surface of the silicon wafer ~~having been~~ cleaned in Step (1) above. The two matrixes were

placed side by side as shown in Fig. 1. The Na matrix was divided into blocks in 10 lines and 10 columns. The reminders of the divisions were ignored.--